

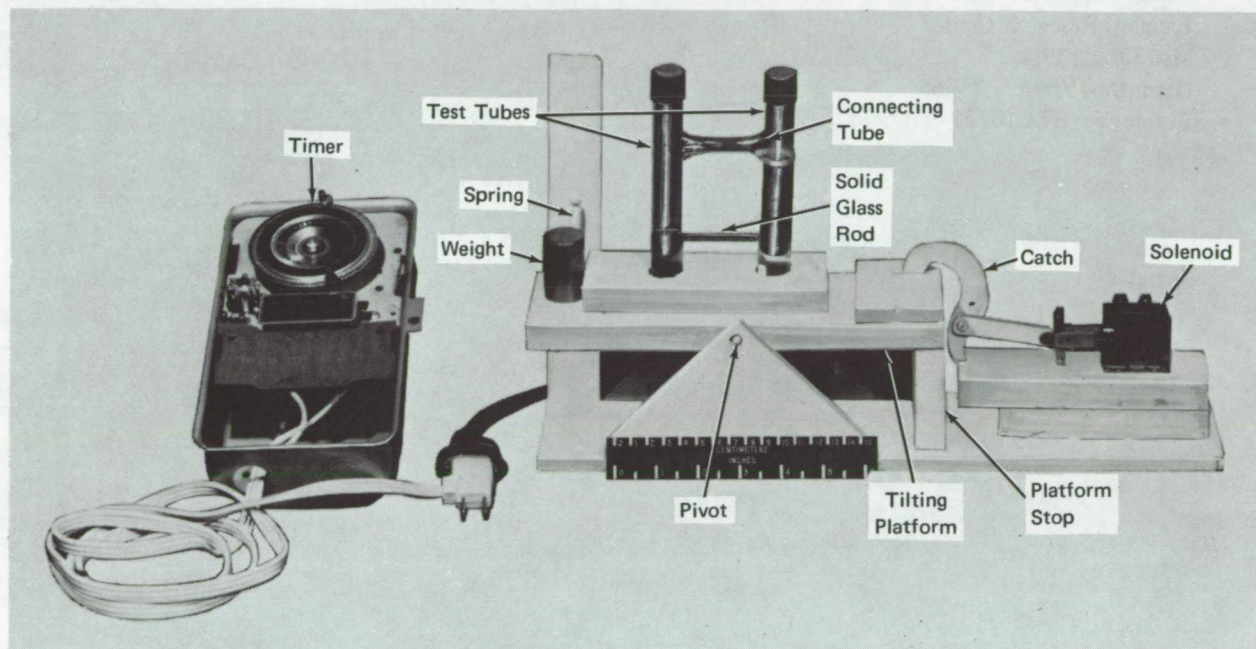
# NASA TECH BRIEF

## *Langley Research Center*



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### Automatic Microbial Transfer



A device for automatically transferring a known volume of bacterial culture from one test tube to another, under sterile conditions, is now being used at Langley Research Center. It can perform such a transfer without human involvement, during non-working hours, as overnight or on weekends.

The device can be used to automatically transfer metabolites or inhibitory agents to broth cultures of bacteria, in various stages of growth, for study. It also has application in the transfer of other microorganisms, such as yeasts, and could be useful in clinical and research laboratories.

The components of the transfer device are shown in the illustration. Two conventional test tubes, connected near the top with an open tube, are strengthened with a solid glass rod near the bottom.

One holds the bacterial culture which will be transferred to the other tube. The connected tubes are placed in a tilting device consisting of a tilting platform which is connected at two pivot points and contains holes to receive the tubes; a catch attached to a solenoid to release the platform when operated; a weight which then forces the platform to tilt; a spring which returns the platform to its original position; and a stop which prevents back tilting of the platform. A timer, attached to the solenoid, releases the catch and permits the tubes to tilt at a pre-set time.

With one of the connected tubes filled with 20 ml of inoculated nutrient broth and the other tube filled with 9 ml of sterile nutrient broth, the tubes are positioned in the transfer device as shown. The solenoid releases the catch when signalled by the timer,

and the weight pulls the tilting platform downward and allows approximately 1.0 ml (range of 0.9 to 1.0 ml) of inoculated broth to flow through the connecting tube into the nutrient broth tube. The spring returns the platform to its original position.

This device has been used for a wide variety of purposes in a number of experimental situations. In one situation it was used to automatically transfer bacterial cells to a sterile broth during the night so that the cells were at an optimum stage of growth for experiments to be conducted at the start of the next working day.

**Note:**

Requests for further information may be directed to:

Technology Utilization Officer  
Langley Research Center  
Mail Stop 139-A  
Hampton, Virginia 23665  
Reference: B73-10229

**Patent status:**

Inquiries concerning rights for the commercial use of this invention should be addressed to:

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